

**CHARACTERIZATION OF BACTERIA ISOLATED
FROM GOAT MANURE IN BETING, KUALA PILAH**

NURAINSHAFIKA BINTI IBRAHIM

**Final Year Project Report Submitted in
Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science (Hons.) Biology
in the Faculty of Applied Sciences
Universiti Teknologi MARA**

JULY 2017

The Final Year project entitled “**Characterization of Bacteria Isolated from Goat Manure in Beting, Kuala Pilah** ” was submitted by Nurainshafika binti Ibrahim, in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Biology, in the Faculty of Applied Sciences, and was approved by

Nurulhuda binti Ismail
Supervisor
B. Sc. (Hons.) Biology
Faculty of Applied Sciences
UiTM Negeri Sembilan
Kampus Kuala Pilah
Pekan Parit Tinggi
72000, Kuala Pilah
Negeri Sembilan.

Lili Syahani Rusli
Project Coordinator
B. Sc. (Hons.) Biology
Faculty of Applied Sciences
UiTM Negeri Sembilan
Kampus Kuala Pilah
Pekan Parit Tinggi
72000, Kuala Pilah
Negeri Sembilan

Dr. Nor’aishah Abu Shah
Head of Biology School
B. Sc. (Hons.) Biology
Faculty of Applied Sciences
UiTM Negeri Sembilan
Kampus Kuala Pilah
Pekan Parit Tinggi
72000, Kuala Pilah
Negeri Sembilan

Date: _____

TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENTS	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vi
LIST OF FIGURES	vii
LIST OF ABBREVIATIONS	viii
ABSTRACT	ix
ABSTRAK	x
CHAPTER 1: INTRODUCTION	
1.1 Background Study	1
1.2 Problem Statement	3
1.3 Significance of Study	4
1.4 Objectives of the Study	4
CHAPTER 2: LITERATURE REVIEW	
2.1 The Goat	5
2.1.1 Diet and feeding	5
2.1.2 Transmission of food borne disease	6
2.2 Goat Manure	7
2.3 Common Bacteria Found in Goat Manure	8
CHAPTER 3: METHODOLOGY	
3.1 Materials	
3.1.1 Samples	9
3.1.2 Chemicals	9
3.1.3 Apparatus	9
3.2 Methods	
3.2.1 Isolation of bacteria	10
3.2.2 Gram staining	11
3.2.3 MacConkey agar test	12
3.2.4 Citrate utilization test	13
3.2.5 Eosin methylene blue agar test	13
3.2.6 Triple sugar iron test	14
3.2.7 Hydrogen sulfide test	15
3.3 Data Analysis	15

CHAPTER 4: RESULTS AND DISCUSSION

4.1	Isolated Bacteria from Goat Manure	17
4.2	Identification of Isolated Bacteria	21
4.2.1	<i>Escherichia coli</i>	21
4.2.2	<i>Pseudomonas</i> spp.	27

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

32

CITED REFERENCES

33

APPENDICES

37

CURRICULUM VITAE

39

ABSTRACT

CHARACTERIZATION OF BACTERIA ISOLATED FROM GOAT MANURE IN BETING, KUALA PILAH

Goat manure is the waste product eliminated from the rumen of the goat resulting from the food intake by the goat. Microorganisms in goat manure would spread in abundance, once the goat manure fall onto the ground and water. Hence, the aim of this study is to characterize the bacteria isolated from goat manure. The improper handling of goat manure in Beting, Kuala Pilah may affect human health. The sample of goat manure was collected aseptically. The goat manure was preceded with a serial dilution up to 10^{-6} and spread on nutrient agar. The pure culture was obtained by sub-culturing each different bacteria on nutrient agar and followed by biochemical tests. The gram staining was first done for gram identification then followed by biochemical tests. The biochemical tests were citrate utilisation, eosin methylene blue agar, triple sugar iron, hydrogen sulfide and MacConkey agar test. Potential bacteria that successfully isolated from goat manure were *Escherichia coli* and *Pseudomonas* spp.. Both bacteria have caused many diseases to human.